

## **Study on the Degree of Technological Equipment Used by Vegetable and Fruit Producers from Arad County**

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### **Abstract**

Our study on vegetable and fruit producers from Arad County intends to offer a clear cut image on the vegetable and fruit production, but also on the producers' technological endowment . This paper is part of a large work and we wish to present aspects regarding the technological endowment and the producers' content towards the middleman companies.

**Keywords:** agromarketing, agrobusiness

### **Introduction**

After 1989, the Agricultural Production Cooperatives disappeared, the existing technological equipment was divided or left neglected. The farmers have got back their land properties, so the production area has been reduced and the mass production has disappeared. There are no written evidences regarding the vegetable and fruit quantitative and qualitative production of Arad county. The lack of a system able to collect and process these data cannot offer a starting point to build up strategies necessary for the formation of the association of small producers in order to offer the product quantity necessary for entering the multinational markets.

From the technological point of view, the vegetable and fruit producers, namely those who have greenhouse or solarium productions, which require small investments, are able to keep the step with producers from other European countries. Great advantage for native

producers is the fact that their products are tastier than those imported, but their disadvantage is that the price is higher than that of the import products. The targets of the work were many, but this paper deals only with the topic regarding the technological endowment level of the vegetable fruit producers and we state that more than 50% of the producers need technologies they do not have.

### Material and Methods

For selecting the sample, we have used a mix of methods: areolar method (Pop,2004) due to which, we have selected those areas that are known as important vegetable and fruit production areas; the first 30% of the producers were selected out of the townhall evidences according to their owned surfaces, type of production (greenhouse, plastic thin sheet or agricultural area)

The study was done using a questionnaire managed by 3 inquiry operators, from July till September 2011, the number of total inquired people being 201. The datas have been processed by means of a statistical programme. For being able to measure the technological endowment degree, a set of questions (Table no.1) has been formulated, wich contains an answer that points out the need of a technological equipment, an answer to point out its holding, an answer regarding the degree of its usage in the agricultural activity.

Tabel no.1

#### Questions regarding the Technological Endowment

Technological name	Would it be necessary?		Do you have it now?		What percentage of the owned equipment do you use?
	Yes	NO	Yes	No	
Farm tractor	Yes	NO	Yes	No	%
Equipment for land working	Yes	NO	Yes	No	%
Pesticide equipment	Yes	NO	Yes	No	%
Combine	Yes	NO	Yes	No	%
Covered warehouse	Yes	NO	Yes	No	%
Closed warehouse	Yes	NO	Yes	No	%
Handling area	Yes	NO	Yes	No	%

Fridge room	Yes	NO	Yes	No	%
Equipment for washing, selecting, sorting	Yes	NO	Yes	No	%
Packing equipment	Yes	NO	Yes	No	%
Means of transport	Yes	NO	Yes	No	%

### **Literature review**

According to Letitia Zahiu (L.Haziu coord, 2010), analyzing the value evolution of the agricultural production, agricultural prices and agricultural efficiency, in preadhering period, the indicators that reflect the global efficiency of the agro food sector indicate a decline between 2005-2007.

Under the circumstances in which the prices of intermediary consumptions rise, namely the intermediary consumptions are not efficiently used, if the fixed capital stocks are destroyed, there will be no investments, the labour force will be unefficiently used, then the subsistence state of agriculture will be kept, namely the discrepancy between the native farmer and the European one will increase.

The low agricultural production of the farmer keeps Romania's agriculture at a low level of competitiveness, both on the unique market and on the native one. For generating an economic increase in agriculture, besides the rising of the products' quality level, it is necessary to create an efficient distribution national network.

The agricultural labour productivity shows the subsistence state of this domain, due to the weak technico-material infrastructure and to the low out-turn. The available labour force, existing in the rural area, can be used both in the agricultural sector and in the non agricultural activities, assuring a lasting development of the rural area.

### **Results and Discussion**

Agricultural activities have been grouped in: animal breeding, cereal production, vegetable - fruit production and agricultural services. 22% of the people have declared that they are also involved in animal breeding activities, and the great majority have declared that animal breeding represented 10 up to 30% of their activities. 30.5 % are involved in cereal production and the share of cereal cultivation from all the agricultural activities is between 10% and 50%.

96% are dealing with vegetable and fruit production, out of them, a percentage of 56.7 are 100% busy with vegetable and fruits, fact that demonstrates the sample representation.

None of the questioned persons declared that they offered services using their owned equipment

As far as the production areas are concerned, the great majority produce vegetables on areas under 1 ha, only a small percentage of 5% have areas between 1 and 10 ha. Fruits are produced in a percentage of 24.4% on surfaces below 1 ha, 12.4% on areas between 1 and 10 ha (here is to be mentioned the water melons and melons) and only 2% on areas larger than 10 ha.

The results of the analyses regarding the technological endowment degree have been got through their procession with a statistical informatics programme, using the answer association, answers indicating the necessity of owning an equipment and its physical owning.

Regarding the farm tractor, 50.5% have declared that they will need one, as they have none, fact that „slightly” refutes our hypothesis, according to which more than half of the farmers do not have the necessary equipment.

There are 18.5 % of those farmers who have a tractor, but they have declared they will not need an excess of technology which can be either the result of investments in the future or the result of the not using the land maximum capacity.

As far as the need of land working equipment is concerned, one can notice that, out of the 33.8% of the persons who have declared they need equipment, 53.5% own it, while 46.5% do not have it.

Also, we have to mention that out of the 13.4% of the farmers who have declared that they do not need land working equipment, 46.6% own this equipment, so there is a surplus of equipment.

Owing the pesticide equipment indicates the fact that 52.7% of the questioned persons who have declared that they need it, really own it, but 47.3% of those who have declared they need it, do not own it.

A high percentage of 26.7% out of the questioned people, in spite of the fact that they have not declared they need these equipments, own them, but these are not used, so, there is a surplus of technology that can be taken into account in the future, as a potential production capacity, in the case the producers wish to increase their production.

Regarding the owning of the combine, associated with the need to own one, we have noticed that 38.6% (22 persons) of the ones who have declared they need a combine, have the combine, while the great majority of 61.4% (35 subjects) have no combine. A great number of people, 64.2% (129 subjects) have declared that they do not need one and really do not own one. This great number of persons is involved in vegetable growing, namely closed greenhouses where they cannot use such an equipment.. We have found out that there is a percentage, 2.3% (3 subjects) who have declared they do not need a combine but they own one.

Analysing the answer results, namely the association regarding the need to have a covered warehouse and its owning, one can notice that only 42.3% of those who have declared they need one, have one, and 11.7% of those who have declared they do not need one, still have such a warehouse.

Regarding the closed warehouse, associated with the need to have it, only 41.5% of those who have declared to need such a warehouse own it and 58.5% do not have it. So, a surplus of 15.1% has been found out.

As far as the handling area is concerned (meant for washing, selecting, packing) the results indicate that only 20.6% of those who have declared they need one, have it, and a great percentage of 79.4% do not own it.

Speaking about the fridge room, 43.3% (87 persons) have declared that they need it and out of them only 12.1% (12 persons) have the room, the rest, i.e. 87.9%, lack it. There is a percentage of 4.5% who have not answered this question. In this case there is no surplus, none has declared that they do not need such a room but they still own one.

Analysing the results of the association between the need of an equipment of washing, selecting, sorting and its owning, one draws the conclusion that out of 36.8% (74 subjects) who have declared they need one, only 23% own it. There is a smaller percentage, 3.1%, out of those who have declared they do not need it but still own this equipment

The result of the association between the need of having a packing equipment and its owning shows us that 34.3% have declared that they do not need it, only 13% own it and 87% do not have such an equipment. There is a small number of subjects who, in spite of the fact that they have declared that they do not need a packing equipment, still have it (1.5%).

Speaking about the endowment of the producers with means of transport, the result of the association between the need of having one and its owning, out of the 110 persons (54.7%) who have declared that they need a means of transport, 59.1% own it, but there is a percentage of 14.9% (30 persons) who do not have it though they have declared they do not need one.

Tabel no. 2

The analysis of the area where the agricultural products are sold

Selling Area	Independent %			Through collecting firm		
	Cereals	Vegetables	Fruits	Cereals	Vegetables	Fruits
In the own area	5.47%	17.91%	7.46%	2.49%	1.49%	1.49%
Outside the area, in the bordering area	6.97%	20.40%	7.46%	1.00%	1.49%	0.00%
Outside the bordering area, in the county	7.96%	29.35%	19.90%	2.99%	6.47%	1.00%
Outside the county, in the region	7.46%	16.42%	6.97%	1.00%	19.40%	0.00%
Outside the region, in the country	1.49%	2.99%	0.50%	1.00%	4.48%	0.00%
Abroad	0.50%	0.00%	0.00%	0.00%	0.00%	0.00%
In the EU countries	0.50%	0.00%	0.00%	1.00%	0.00%	0.00%
In East Europe	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
In other countries	0.50%	0.00%	0.00%	0.00%	0.00%	0.00%

Analysing the data (percentage of total subjects), one finds out that independent selling of cereals is achieved in the county (7.96%) followed by region (7.47%), namely outside the living area (6.97%). A very small percentage (0.5%) is sold in the country, in the UE countries, East of Europe, even in other non UE members. It is worth mentioning that cereal sales through collecting firms, arrive in the EU countries in very small percentage.

Direct vegetable sales, in the highest percentage, 29.35%, arrive in the county, a percentage of 20.40 % are sold outside the living area but in the bordering area, 17.19% are sold on the living area markets, 16.42% are to be sold in the region and a very small percentage of

2.99% is sold in the country, outside the West region, by placing them on the Bihor and Cluj counties' markets.

Vegetable sales through collecting firms (wholesale) arrive in the region in 19.40 %, but 6.47% in the county. A very small percentage, 4.48%, is sold in the country. The sales in the living area and the bordering areas are unimportant.

Direct fruit sales, in the highest percentage, 19.90%, are done in the county, 7.47% are sold in the living area or the bordering areas (this is due to the fact that many water melone and melone producers sell their products near the roads), and a percentage of 6.97% are sold on the region markets. As far as the fruit sales through the collecting firms (wholesale), the percentage is low and they do not reach the county markets.

Tabel no. 3.

Satisfaction Degree towards the Services of other Collectors (wholesale)

Offered service (no. of subjects)	Very satisfied	Partial satisfied	satisfying	Partial dissatisfied	Very dissatisfied	Total subjects	% respondents of the total sample	Obtained Score *
Goods transport	11	-	-	-	2	13	6.47 %	4.38
Purchasing price	3	6	9	-	2	20	9.95 %	3.40
Payment deadline	11	2	3	-	2	18	8.96 %	4.11
Offered consultancy services	2	-	-	1	-	3	1.49 %	4.00
Offered equipment for lending	-	-	-	-	2	2	1.00 %	1.00
Packing Services	3	1	-	3	2	9	4.48 %	3.00
Depositin	12	1	-	2	-	15	7.46	4.53

g Services							%	
* 1 - 2 very dissatisfied, 2 - 3 dissatisfied, 3 - 4 satisfactory, 4-5 contented, 5 – very contented								

This segment of the analysis was designed to highlight experiences that vegetables and fruits producers had with various companies that have bought their products in order to resell the production.

From the transport point of view, analysing the answers offered by the 13 subjects (6.47%), the obtained score is 4.38%, it means a high degree of content towards this type of service.

Regarding the purchasing price, we have found out that the 20 subjects (9.95%) indicate a score of 3.4, pointing out that the price they obtained was satisfying for them

Studying the results of the 15 subjects (7.46%), experience regarding the depositing services has got a score of 4.53%, indicating a degree of satisfaction.

Concerning the got consultancy services, the equipment offered to be lent namely the packing services, being under 5% of the subjects, we cannot take them into account as being representative .

### Conclusion

On the ground of the issued hypothesis, i.e. over 50% of the producers lack technology, it was validated, for a great part of the technological equipment, but there were elements for which the hypothesis was invalidated (Table no. 4)

Table no. 4  
Analyses Results of the Answers regarding Technological Capacities

Technological name	Would it be necessary? (% of total answers)		Do you have it now? (% total answers)		Hypotheses (% those who need it)
	Yes	No	Yes	No	
Farm tractor	49%	40%	43%	58%	49% - validated
Equipment for land working	63%	28%	53%	43%	54% - invalidated



Pesticide equipment	56%	37%	42%	54%	53% invalidated	-
Combine	28%	65%	13%	82%	38% validated	-
Covered warehouse	48%	46%	26%	70%	42% validated	-
Closed warehouse	47%	46%	26%	67%	42% validated	-
Handling area	48%	44%	11%	83%	48% validated	-
Fridge room	49%	43%	7%	88%	12% validated	-
Equipment for washing, selecting, sorting	36%	48%	10%	77%	23% validated	-
Packing equipment	34%	50%	6%	79%	13% validated	-
Transport means	54%	34%	53%	43%	59% invalidated	-

For validating the hypotheses, we have taken into account only those persons who have declared that they need the respective technology. So, the hypotheses have been validated for: farm tractor, combine, covered warehouse, closed warehouse, handling area, equipment for washing, selecting, sorting namely packing.

The hypothesis has been invalid, namely more than 50% of those who need equipment also own it: equipment for land processing, equipment for pesticide, namely means of transport.

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G. Sanda, M.D. Pop

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